OIPE
OCT 12 2004
PATENT & TRADEMARK OFFICE

FIG 1

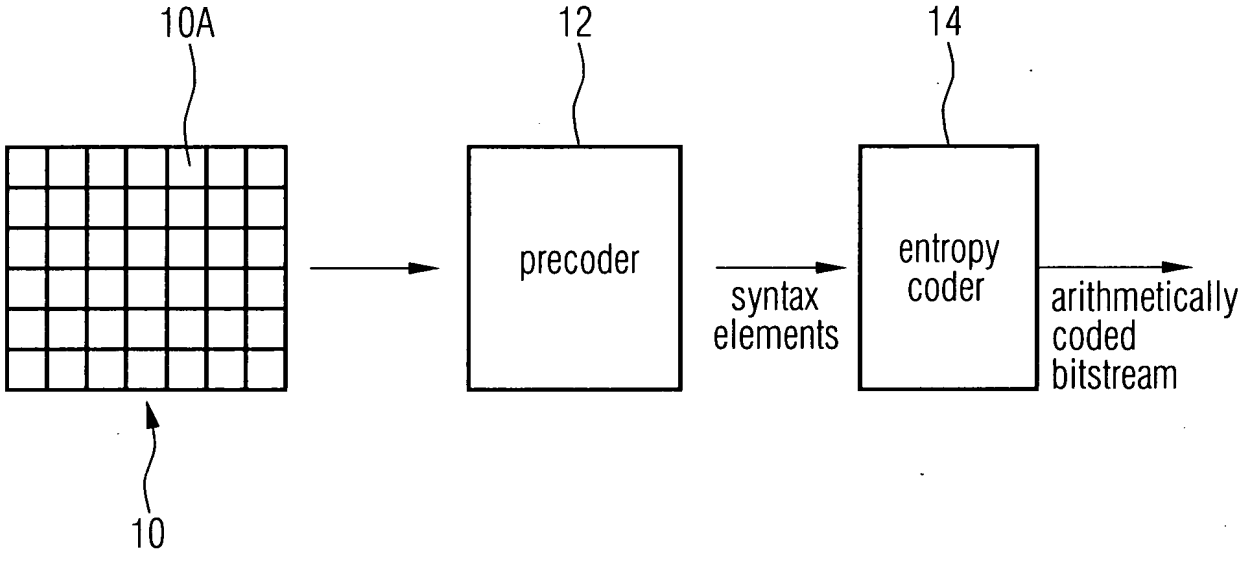


FIG 9

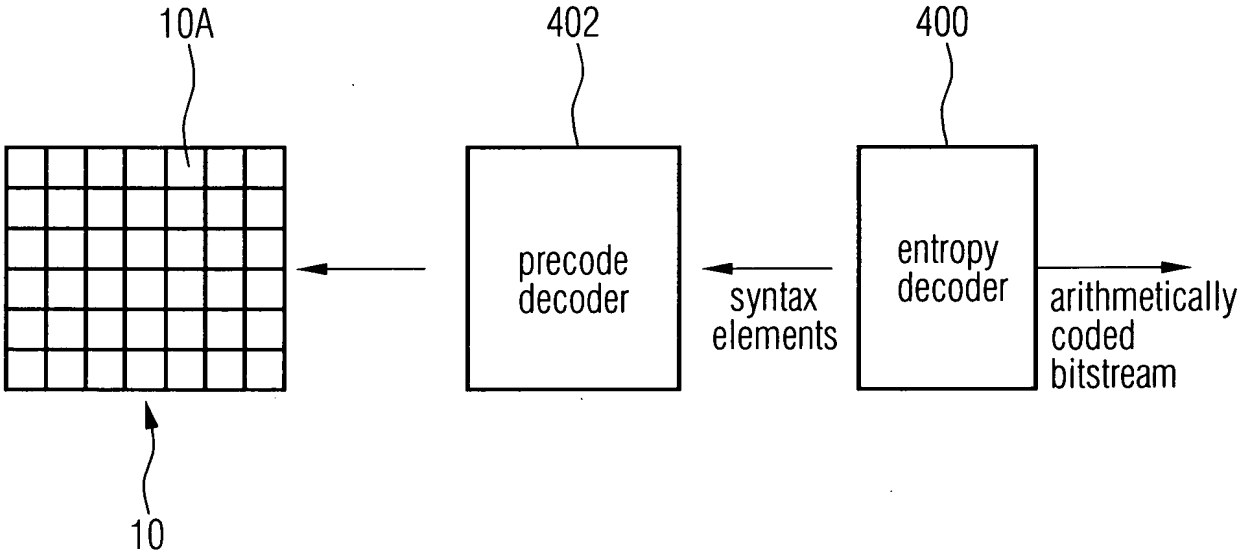


FIG 4A

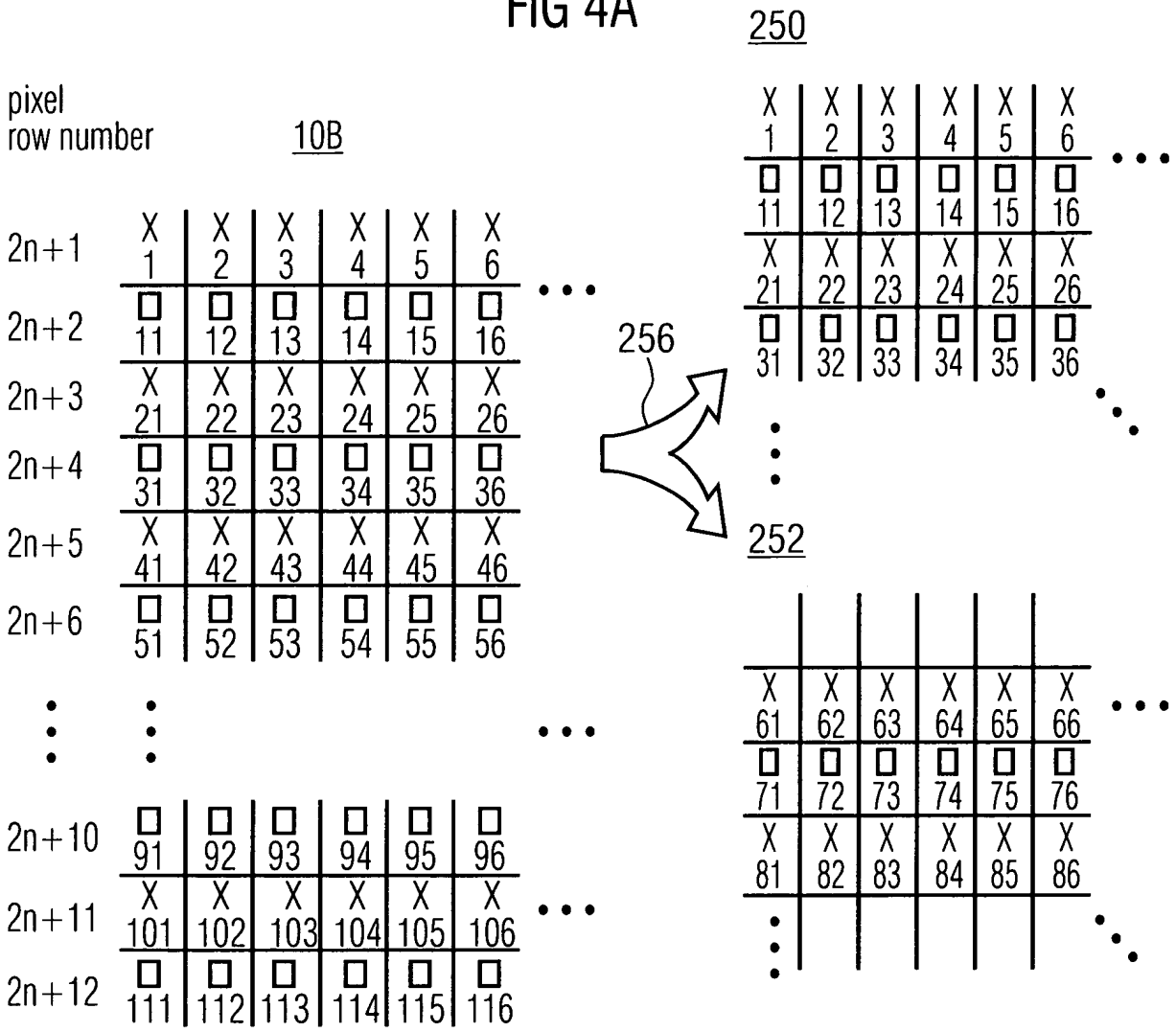

250
pixel
row number
10B
2n+1
2n+2
2n+3
2n+4
2n+5
2n+6
2n+10
2n+11
2n+12
256
252

FIG 2

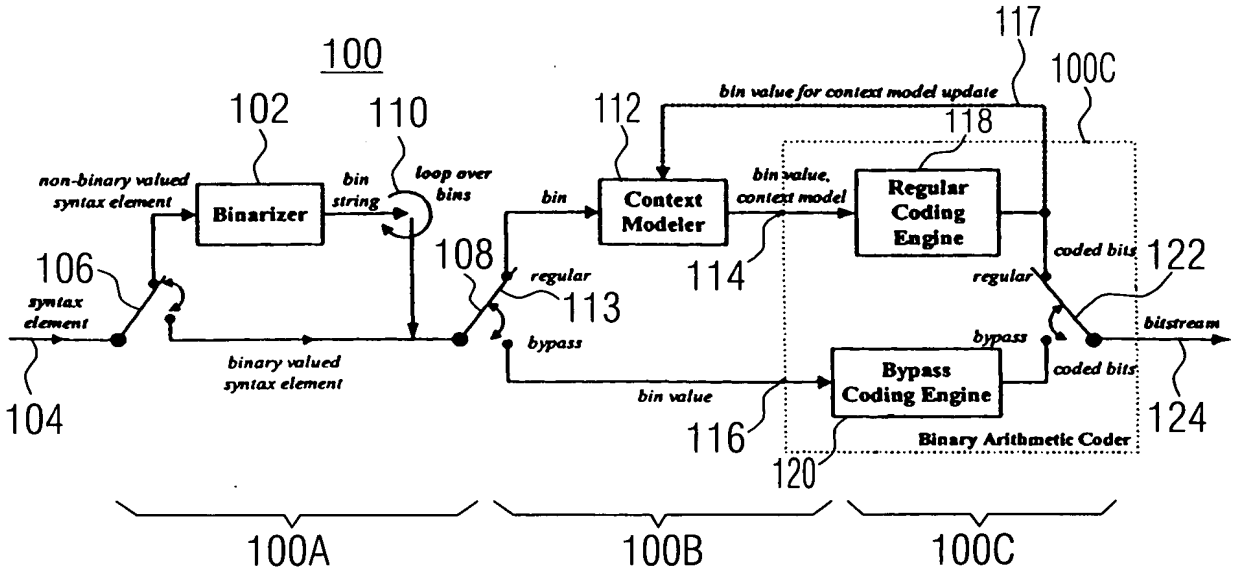

100
102
110
112
117
100C
118
bin value for context model update
non-binary valued syntax element
Binarizer
bin string
loop over bins
bin
Context Modeler
bin value, context model
Regular Coding Engine
106
syntax element
108
regular
113
114
coded bits
122
bypass
bitstream
binary valued syntax element
bin value
Bypass Coding Engine
coded bits
104
116
120
Binary Arithmetic Coder
124
100A
100B
100C

FIG 4A

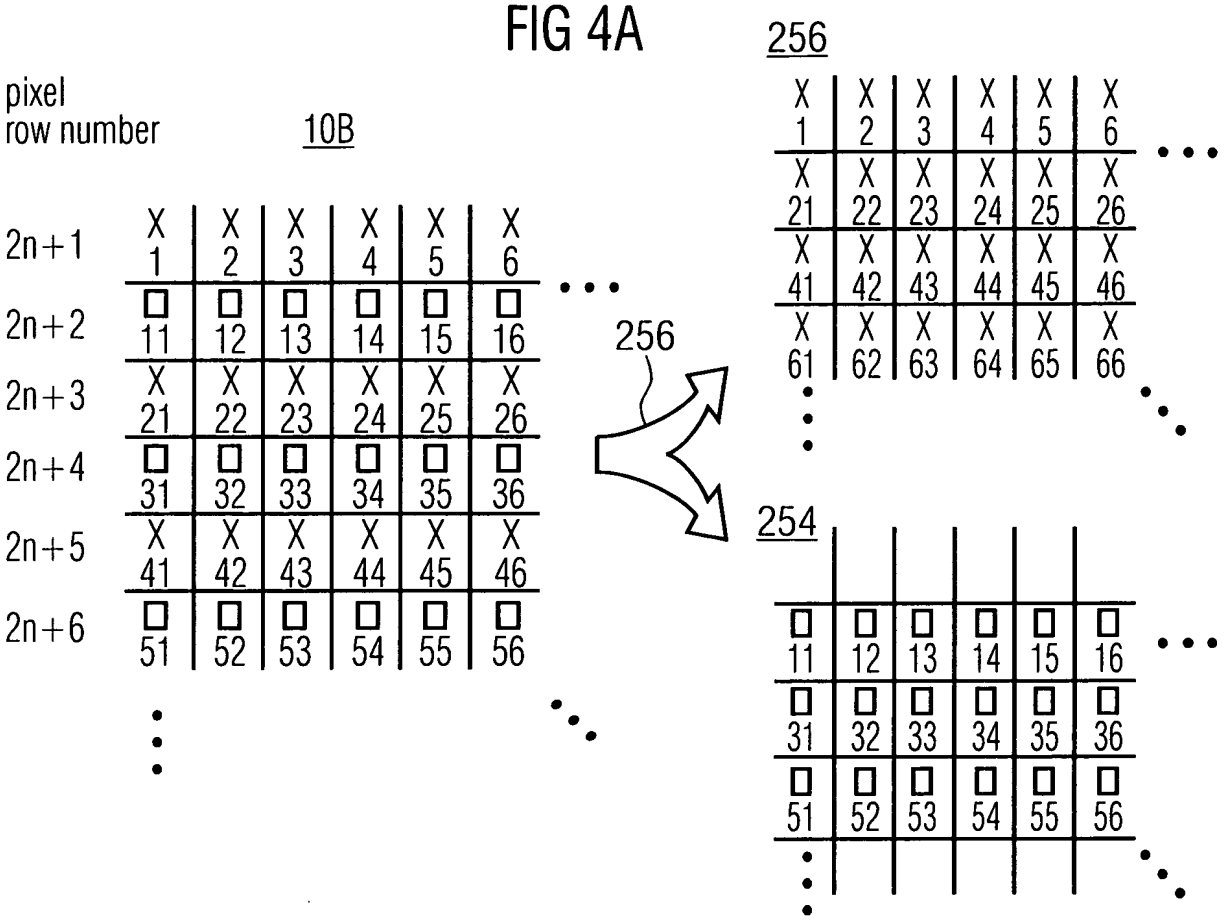


FIG 3

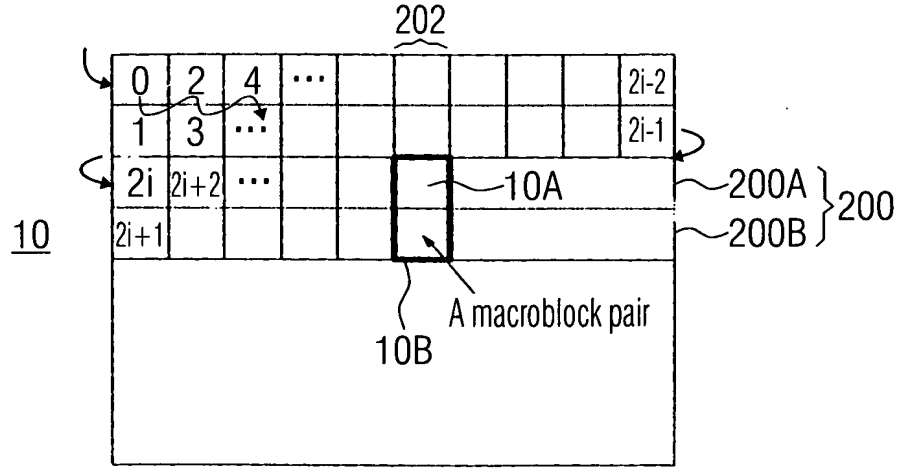


FIG 7

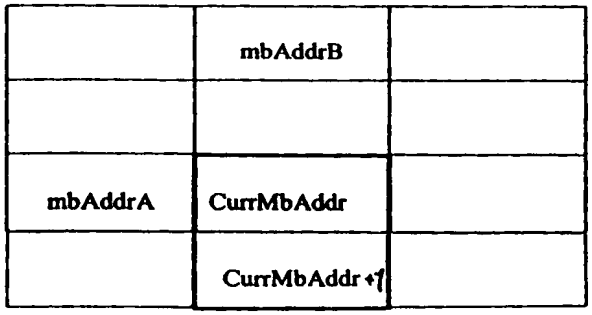


FIG 5

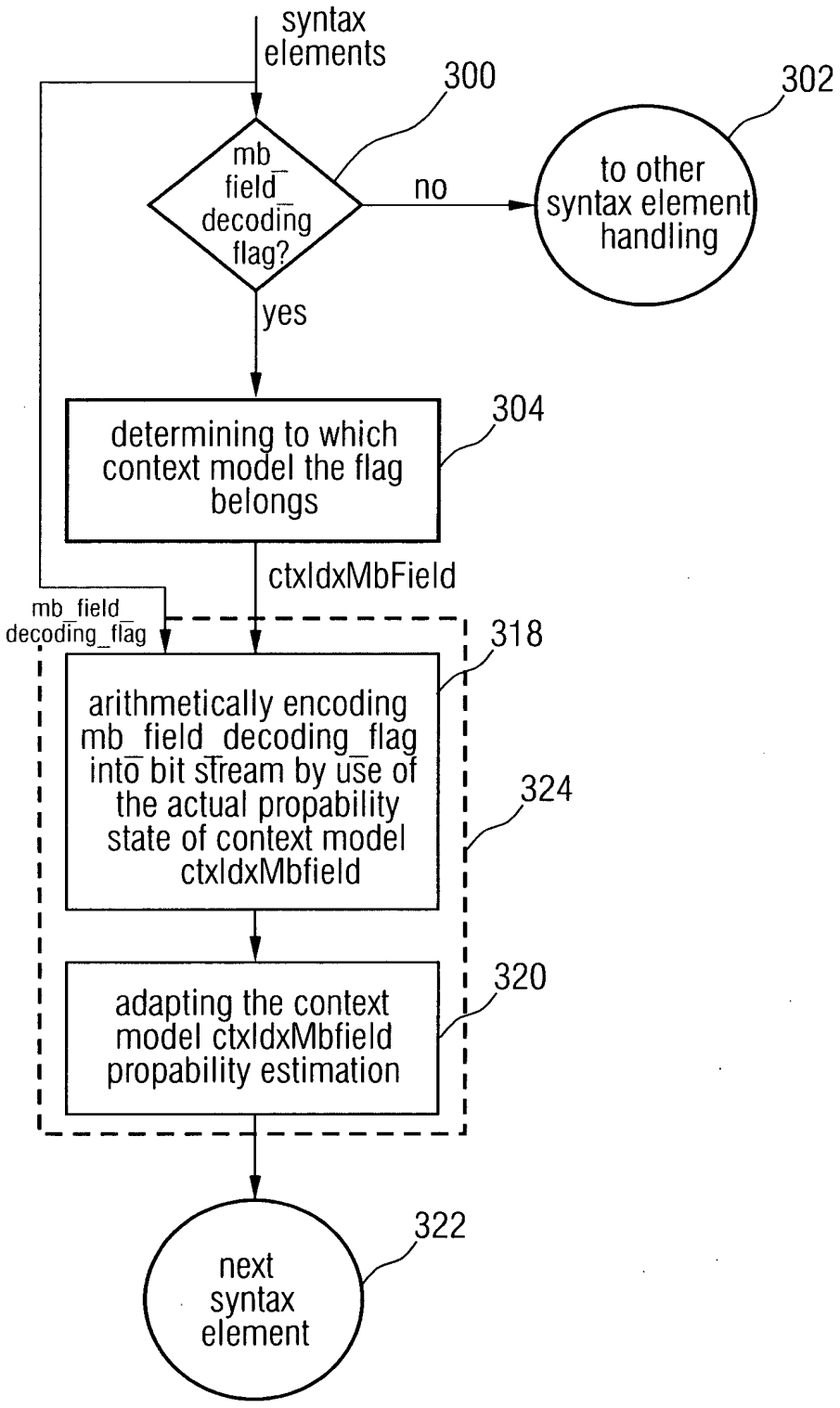

syntax elements
300
302
mb_ field_ decoding flag?
no
to other syntax element handling
yes
304
determining to which context model the flag belongs
ctxIdxMbField
mb_field_ decoding_flag
318
arithmetically encoding mb_field_decoding_flag into bit stream by use of the actual propability state of context model ctxIdxMbfield
324
adapting the context model ctxIdxMbfield propability estimation
320
next syntax element
322

FIG 6

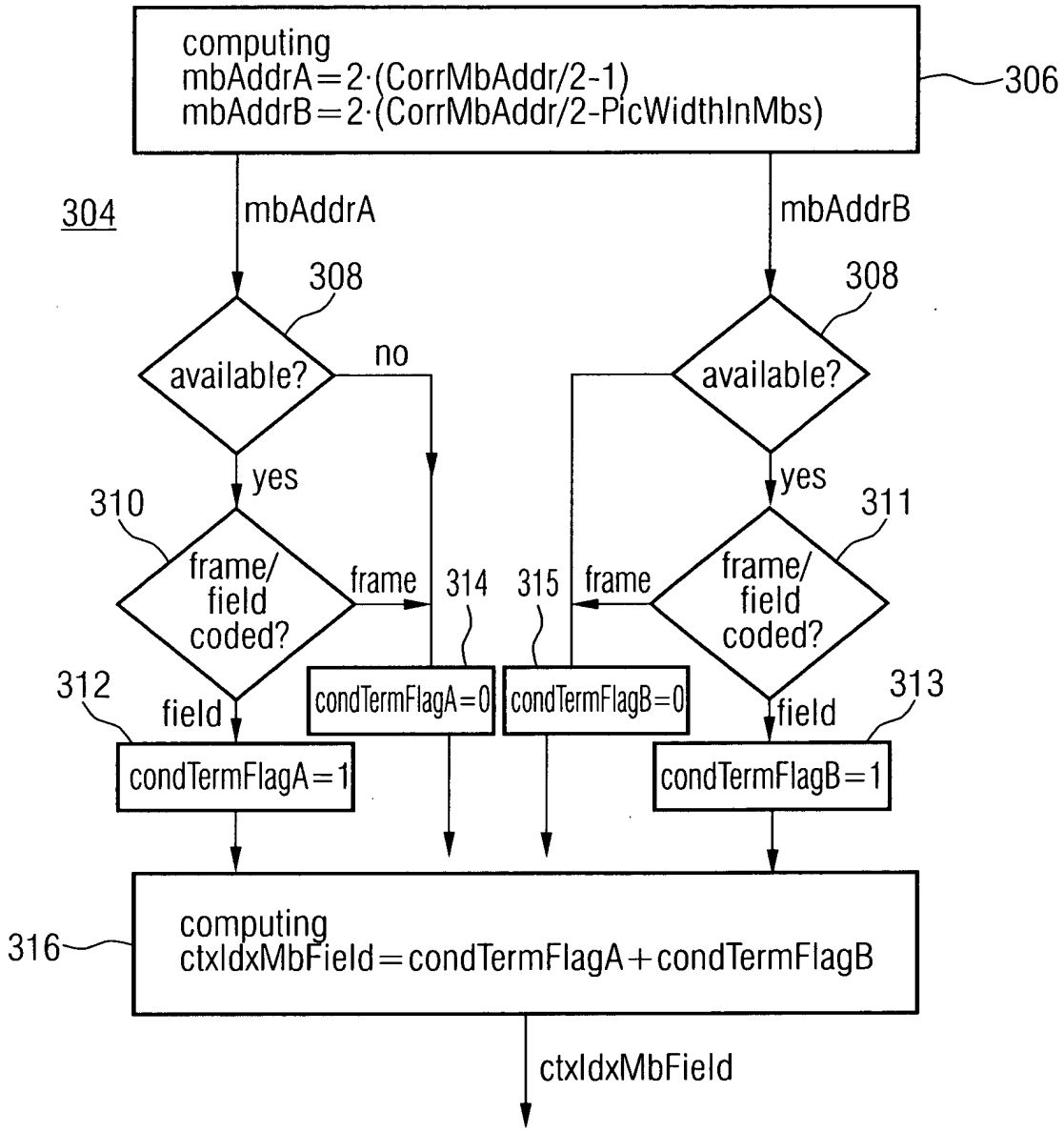

computing
mbAddrA=2·(CorrMbAddr/2-1)
mbAddrB=2·(CorrMbAddr/2-PicWidthInMbs)
306
304
mbAddrA
mbAddrB
308
308
available?
available?
no
yes
yes
310
311
frame/
field
coded?
frame
314
315
frame
frame/
field
coded?
312
field
condTermFlagA=0
condTermFlagB=0
313
field
condTermFlagA=1
condTermFlagB=1
316
computing
ctxIdxMbField=condTermFlagA+condTermFlagB
ctxIdxMbField

FIG 8

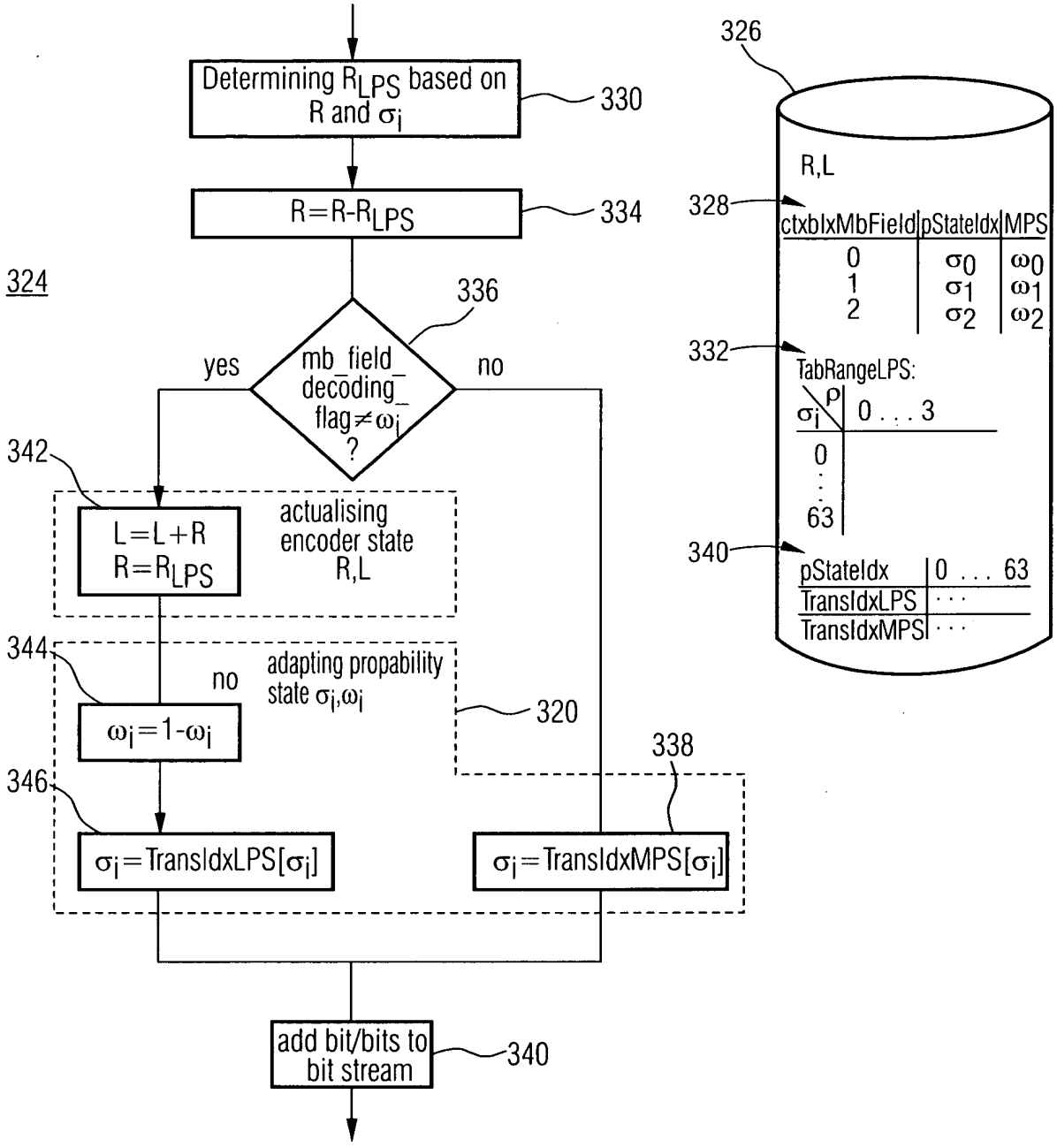

Determining R_{LPS} based on R and σ_i
330
$R=R-R_{LPS}$
334
324
336
yes
mb_field_decoding_flag $\neq \omega_i$?
no
342
$L=L+R$
$R=R_{LPS}$
actualising encoder state R,L
344
no
adapting propability state σ_i,ω_i
320
$\omega_i=1-\omega_i$
346
338
$\sigma_i=TransIdxLPS[\sigma_i]$
$\sigma_i=TransIdxMPS[\sigma_i]$
add bit/bits to bit stream
340
326
R,L
328
ctxbIxMbField | pStateIdx | MPS
0 | σ_0 | ω_0
1 | σ_1 | ω_1
2 | σ_2 | ω_2
332
TabRangeLPS:
σ_i \ ρ | 0 . . . 3
0
63
340
pStateIdx | 0 . . . 63
TransIdxLPS | . . .
TransIdxMPS | . . .

FIG 10

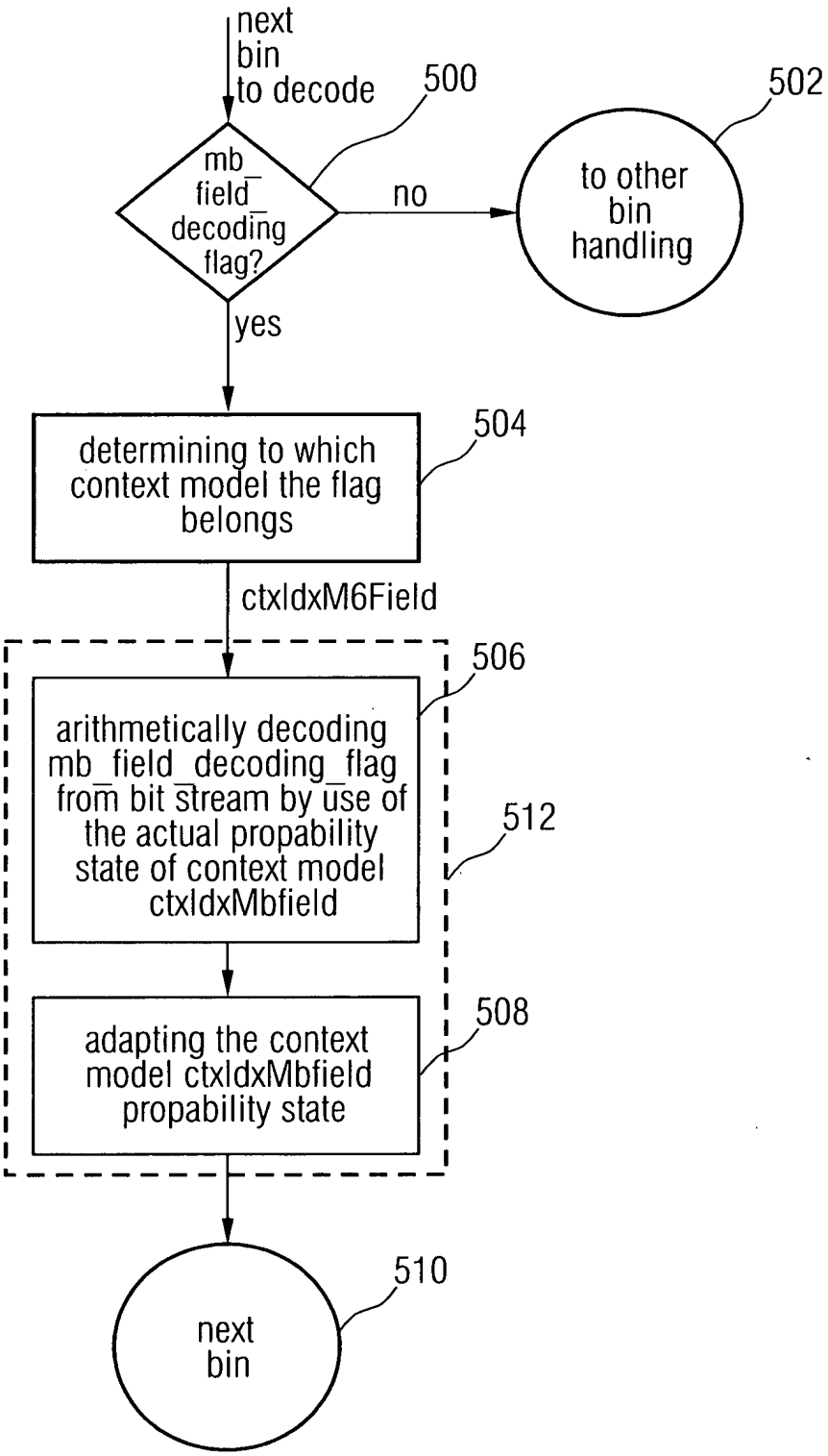

next bin to decode
500
mb_field_decoding_flag?
no
502
to other bin handling
yes
504
determining to which context model the flag belongs
ctxIdxM6Field
506
arithmetically decoding mb_field_decoding_flag from bit stream by use of the actual propability state of context model ctxIdxMbfield
512
adapting the context model ctxIdxMbfield propability state
508
510
next bin

FIG 12

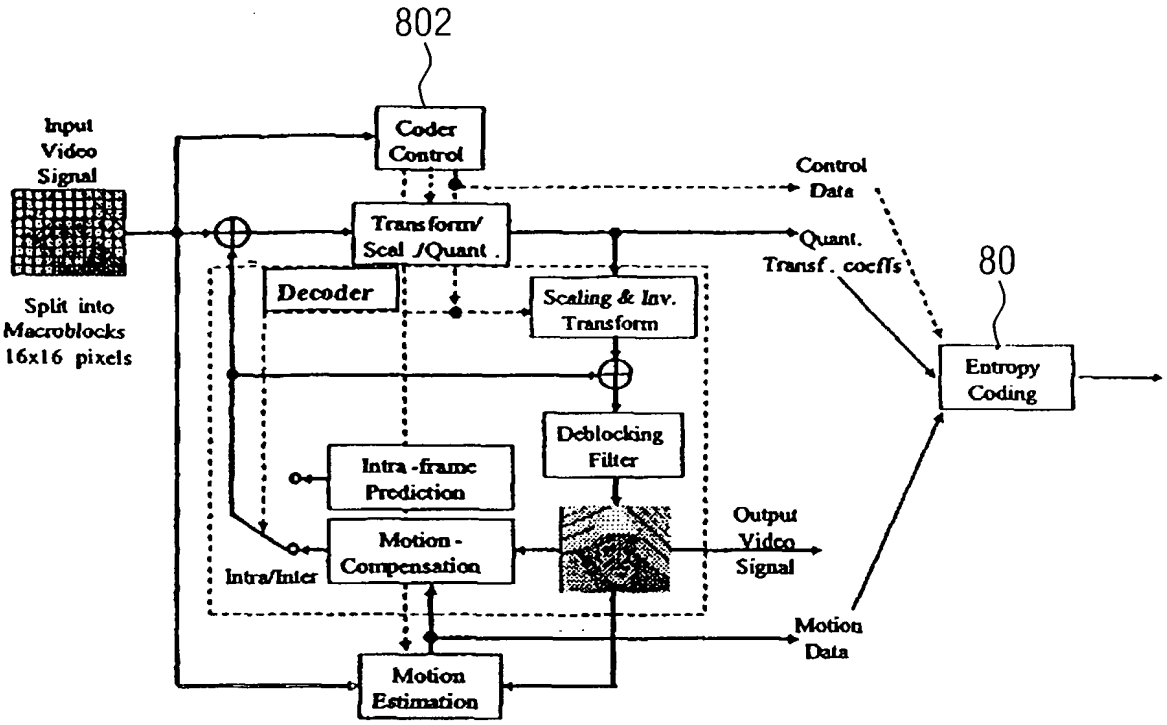


FIG 13

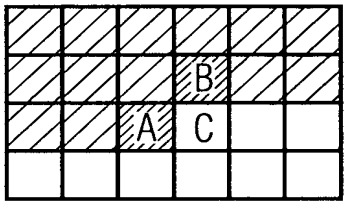


FIG 15

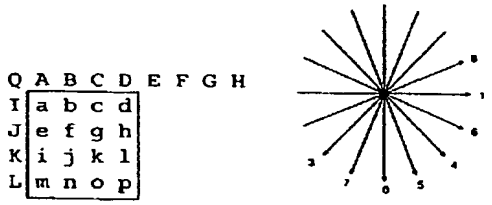


FIG 14

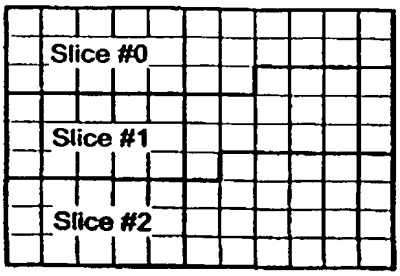
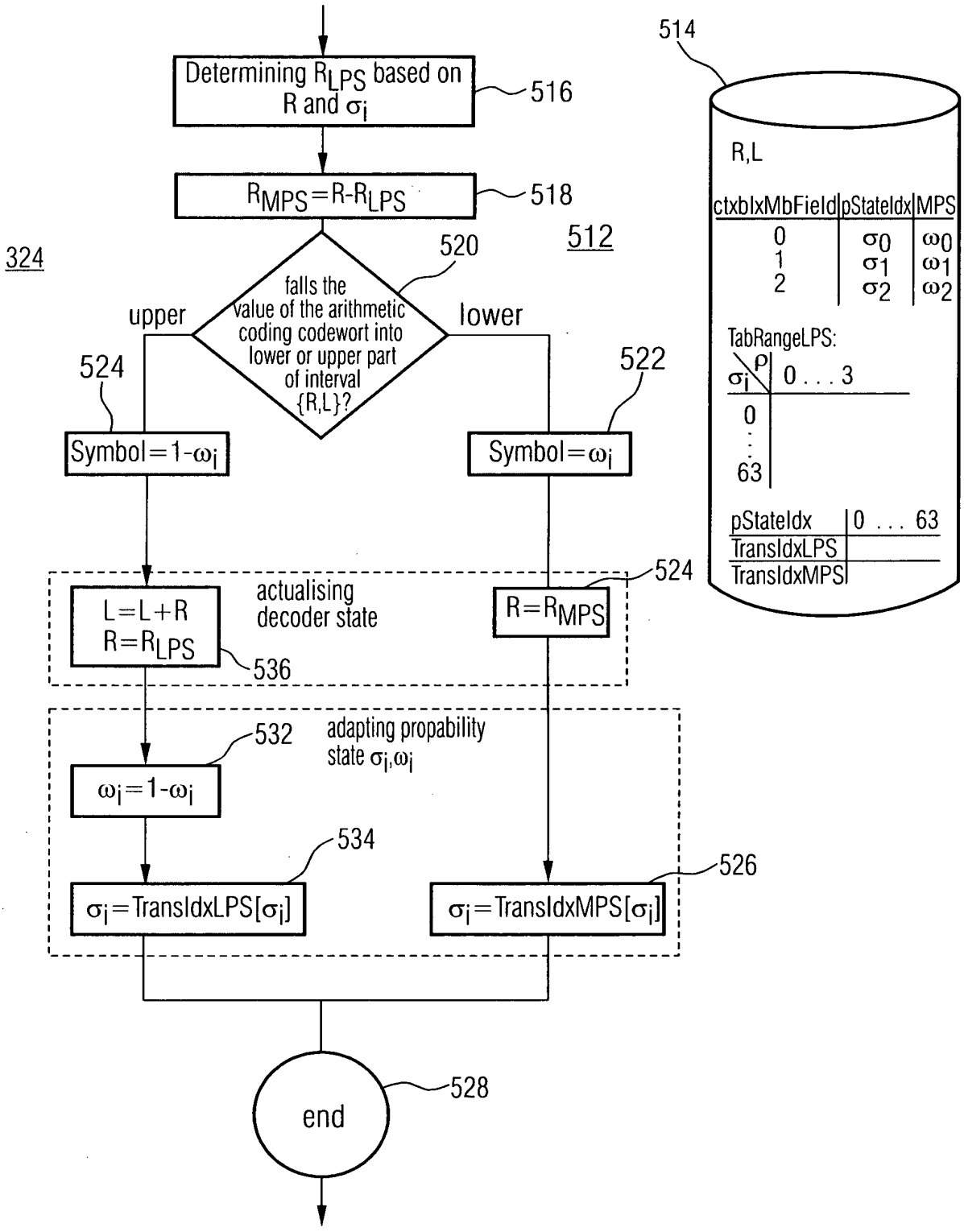


FIG 11


Determining R_{LPS} based on R and σ_i
516
$R_{MPS}=R-R_{LPS}$
518
520
512
324
falls the value of the arithmetic coding codewort into lower or upper part of interval {R,L}?
upper
lower
524
522
Symbol=1-ω_i
Symbol=ω_i
514
R,L
ctxbIxMbFieId | pStateIdx | MPS
0 | σ_0 | ω_0
1 | σ_1 | ω_1
2 | σ_2 | ω_2
TabRangeLPS:
σ_i / ρ | 0 . . . 3
0
.
.
.
63
pStateIdx | 0 . . . 63
TransIdxLPS
TransIdxMPS
524
actualising decoder state
L=L+R
$R=R_{LPS}$
536
$R=R_{MPS}$
adapting propability state σ_i,ω_i
532
$\omega_i=1-\omega_i$
534
526
σ_i=TransIdxLPS[σ_i]
σ_i=TransIdxMPS[σ_i]
end
528